=> d his

(FILE 'HOME' ENTERED AT 08:15:32 ON 19 AUG 2008)

FILE 'CAPLUS' ENTERED AT 08:16:17 ON 19 AUG 2008

E US2007-589920/APPS

L1 1 S E3

SEL L1 RN 1-

FILE 'REGISTRY' ENTERED AT 08:23:25 ON 19 AUG 2008

L2 417 S E1-E417

E "1H-(1)BENZOPYRANO(3,4-F)QUINOLIN-9-OL, 5-((2-FLUORO-3-METHYL

L3 1 S E3

FILE 'CAPLUS' ENTERED AT 08:27:59 ON 19 AUG 2008

L4 2 S L3

FILE 'USPATFULL, USPATOLD, USPAT2' ENTERED AT 08:30:42 ON 19 AUG 2008

L5 1 S L3

FILE 'TOXCENTER' ENTERED AT 08:32:56 ON 19 AUG 2008

L6 2 S L3

L1 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:979655 CAPLUS <<LOGINID::20080819>>

DOCUMENT NUMBER: 143:286410

TITLE: Preparation of 5H-chromeno[3,4-f]quinolines as

glucocorticoid receptor modulators

INVENTOR(S): Zhi, Lin; Ardecky, Robert J.; Phillips, Dean; Tyhonas,

> John S.; Karanewsky, Donald S.; Higuchi, Robert I.; Hudson, Andrew Richard; Roach, Steven L.; Vassar, Angie C.; Li, Yongkai; Adams, Mark E.; Valdez, Lino

Juan; Cuervo, Catalina

PATENT ASSIGNEE(S): Ligand Pharmaceuticals Incorporated, USA

PCT Int. Appl., 352 pp. SOURCE:

CODEN: PIXXD2

DOCUMENT TYPE: Patent LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | | | | KIND DATE | | | APPLICATION NO. | | | | DATE | | | | | | |
|---------------------|------|--------|-----|-------------|----------|------|-----------------|----------------|------|------|---------|----------|----------|-----|-----|------|-------|
| WO 2005082909 | | | | A1 20050909 | | | | WO 2005-US6627 | | | | 20050224 | | | | | |
| | W: | ΑE, | AG, | AL, | AM, | AT, | ΑU, | ΑZ, | BA, | BB, | BG, | BR, | BW, | BY, | BZ, | CA, | CH, |
| | | CN, | CO, | CR, | CU, | CZ, | DE, | DK, | DM, | DZ, | EC, | EE, | EG, | ES, | FI, | GB, | GD, |
| | | GE, | GH, | GM, | HR, | HU, | ID, | IL, | IN, | IS, | JP, | ΚE, | KG, | KP, | KR, | KΖ, | LC, |
| | | LK, | LR, | LS, | LT, | LU, | LV, | MA, | MD, | MG, | MK, | MN, | MW, | MX, | MZ, | NA, | NI, |
| | | NO, | NΖ, | OM, | PG, | PH, | PL, | PT, | RO, | RU, | SC, | SD, | SE, | SG, | SK, | SL, | SM, |
| | | SY, | ΤJ, | TM, | TN, | TR, | TT, | TZ, | UA, | UG, | UZ, | VC, | VN, | YU, | ZA, | ZM, | ZW |
| | RW: | BW, | GH, | GM, | ΚE, | LS, | MW, | MZ, | NA, | SD, | SL, | SZ, | TZ, | UG, | ZM, | ZW, | AM, |
| | | ΑZ, | BY, | KG, | KΖ, | MD, | RU, | ΤJ, | TM, | ΑT, | BE, | BG, | CH, | CY, | CZ, | DE, | DK, |
| | | EE, | ES, | FI, | FR, | GB, | GR, | HU, | ΙE, | IS, | ΙΤ, | LT, | LU, | MC, | NL, | PL, | PT, |
| | | RO, | SE, | SI, | SK, | TR, | BF, | ВJ, | CF, | CG, | CI, | CM, | GΑ, | GN, | GQ, | GW, | ML, |
| | | MR, | ΝE, | SN, | TD, | ΤG | | | | | | | | | | | |
| CA 2557278 | | | A1 | | 2005 | 0909 | 1 | CA 2 | 005- | 2557 | 278 | | 20050224 | | | | |
| EP | 1718 | 653 | | | A1 | | 2006 | 1108 | | EP 2 | 005- | 7242 | 20 | | 2 | 0050 | 224 |
| | R: | ΑT, | BE, | CH, | DE, | DK, | ES, | FR, | GB, | GR, | ΙΤ, | LI, | LU, | NL, | SE, | MC, | PT, |
| | | ΙE, | SI, | LT, | LV, | FI, | RO, | MK, | CY, | AL, | TR, | ВG, | CZ, | EE, | HU, | PL, | SK, |
| | | BA, | HR, | IS, | ΥU | | | | | | | | | | | | |
| | 1950 | | | | | | 2007 | 0418 | | | 005- | | | | | 0050 | 224 |
| BR 2005007987 | | | | 20070731 | | | | | | | | | | | | | |
| JP | 2007 | 5239. | 50 | | ${ m T}$ | | 2007 | 0823 | | JP 2 | 007- | 5008 | 28 | | 2 | 0050 | 224 |
| MX | 2006 | PA09 | 544 | | Α | | 2006 | 1115 | | MX 2 | 006 - 1 | PA95 | 44 | | 2 | 0060 | 822 |
| ΙN | 2006 | DN 0 4 | 910 | | А | | 2007 | 0810 | | IN 2 | 006- | DN 49 | 10 | | 2 | 0060 | 825 |
| US | 2007 | 0281 | 959 | | A1 | | 2007 | 1206 | | US 2 | 007- | 5899 | 20 | | 2 | 0070 | 420 < |
| ORITY APPLN. INFO.: | | | | .: | | | | | | | 004- | | | | | | |
| | | | | | | | | | | WO 2 | 005- | US66 | 27 | 1 | W 2 | 0050 | 224 |
| IEB SUIBCE(S). | | | | | | ロカエ | 1/12. | 2961 | 1 () | | | | | | | | |

MARPAT 143:286410 OTHER SOURCE(S):

REFERENCE COUNT: THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS 1

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

- L3 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2008 ACS on STN
- RN 864054-14-8 REGISTRY
- ED Entered STN: 27 Sep 2005
- CN 1H-[1]Benzopyrano[3,4-f]quinolin-9-ol, 5-[(2-fluoro-3-methylphenyl)methylene]-2,5-dihydro-10-methoxy-2,2,4-trimethyl-, (5Z)-(CA INDEX NAME)

OTHER NAMES:

- CN (Z)-5-(2'-Fluoro-3'-methylbenzylidene)-1,2-dihydro-9-hydroxy-10-methoxy-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline
- CN LGD 5552
- FS STEREOSEARCH
- MF C28 H26 F N O3
- SR CA
- LC STN Files: CA, CAPLUS, TOXCENTER, USPATFULL

Double bond geometry as shown.

- **PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**
 - 2 REFERENCES IN FILE CA (1907 TO DATE)
 - 2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L4 ANSWER 1 OF 2 CAPLUS COPYRIGHT 2008 ACS on STN ACCESSION NUMBER: 2008:24690 CAPLUS <<LOGINID::20080819>> DOCUMENT NUMBER: 148:253667

TITLE: Antiinflammatory glucocorticoid receptor ligand with

reduced side effects exhibits an altered

protein-protein interaction profile

AUTHOR(S):

Miner, Jeffrey N.; Ardecky, Bob; Benbatoul, Khalid;
Groffoths, Kimberly; Larson, Christopher J.; Mais,
Dale E.; Marschke, Keith; Rosen, Jon; Vajda, Eric;

Zhi, Lin; Negro-Vilar, Andres

CORPORATE SOURCE: Discovery Research, Ligand Pharmaceuticals, San Diego,

CA, 92121, USA

SOURCE: Proceedings of the National Academy of Sciences of the

United States of America (2007), 104(49), 19244-19249

CODEN: PNASA6; ISSN: 0027-8424

PUBLISHER: National Academy of Sciences

DOCUMENT TYPE: Journal LANGUAGE: English

AB Glucocorticoids are commonly used anti-inflammatory agents whose use is limited by side effects. The authors have developed a series of glucocorticoid receptor (GR) ligands that retain the strong anti-inflammatory activity of conventional glucocorticoids with reduced side effects. The authors present a compound, LGD5552, that binds the receptor efficiently and strongly represses inflammatory gene expression. LGD5552 bound to GR activates gene expression somewhat differently than glucocorticoids. It activates some genes with an efficacy similar to that of the glucocorticoids. However, other glucocorticoid-activated genes are not regulated by LGD5552. These differences may be because of the more efficient binding of corepressor in the presence of LGD5552, compared with glucocorticoid agonists. This class of nonsteroidal, GR-dependent anti-inflammatory drugs may offer a safer alternative to steroidal glucocorticoids in the treatment of inflammatory disease.

IT 864054-14-8, LGD 5552

RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(antiinflammatory glucocorticoid receptor ligand with reduced side effects exhibits an altered protein-protein interaction profile)

RN 864054-14-8 CAPLUS

CN 1H-[1]Benzopyrano[3,4-f]quinolin-9-ol, 5-[(2-fluoro-3-methylphenyl)methylene]-2,5-dihydro-10-methoxy-2,2,4-trimethyl-, (5Z)-(CA INDEX NAME)

Double bond geometry as shown.

REFERENCE COUNT: 43 THERE ARE 43 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 2 OF 2 CAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:979655 CAPLUS <<LOGINID::20080819>>

DOCUMENT NUMBER: 143:286410

TITLE: Preparation of 5H-chromeno[3,4-f]quinolines as

glucocorticoid receptor modulators

INVENTOR(S): Zhi, Lin; Ardecky, Robert J.; Phillips, Dean; Tyhonas,

John S.; Karanewsky, Donald S.; Higuchi, Robert I.; Hudson, Andrew Richard; Roach, Steven L.; Vassar, Angie C.; Li, Yongkai; Adams, Mark E.; Valdez, Lino

Juan; Cuervo, Catalina

PATENT ASSIGNEE(S): Ligand Pharmaceuticals Incorporated, USA

SOURCE: PCT Int. Appl., 352 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | | | | KIND | | DATE | | APPLICATION NO. | | | | | DATE | | | | |
|---------------|------------|-----|-----|----------|-----|----------|-----------------|-----------------|----------------|-----|-----|----------|----------|----------|-----|-----|-----|
| WO 2005082909 | | | | A1 | _ | 20050909 | | WO 2005-US6627 | | | | | 20050224 | | | | |
| | W: | ΑE, | AG, | AL, | AM, | ΑT, | AU, | ΑZ, | BA, | BB, | BG, | BR, | BW, | BY, | BZ, | CA, | CH, |
| | | CN, | CO, | CR, | CU, | CZ, | DE, | DK, | DM, | DZ, | EC, | EE, | EG, | ES, | FΙ, | GB, | GD, |
| | | GE, | GH, | GM, | HR, | HU, | ID, | IL, | IN, | IS, | JP, | ΚE, | KG, | KP, | KR, | KΖ, | LC, |
| | | LK, | LR, | LS, | LT, | LU, | LV, | MA, | MD, | MG, | MK, | MN, | MW, | MX, | MZ, | NA, | ΝI, |
| | | NO, | NΖ, | OM, | PG, | PH, | PL, | PT, | RO, | RU, | SC, | SD, | SE, | SG, | SK, | SL, | SM, |
| | | SY, | ТJ, | TM, | TN, | TR, | TT, | TZ, | UA, | UG, | UZ, | VC, | VN, | YU, | ZA, | ZM, | ZW |
| | RW: | BW, | GH, | GM, | ΚE, | LS, | MW, | MZ, | NA, | SD, | SL, | SZ, | TZ, | UG, | ZM, | ZW, | AM, |
| | | ΑZ, | BY, | KG, | KΖ, | MD, | RU, | ТJ, | TM, | ΑT, | BE, | BG, | CH, | CY, | CZ, | DE, | DK, |
| | | EE, | ES, | FI, | FR, | GB, | GR, | HU, | ΙE, | IS, | ΙT, | LT, | LU, | MC, | NL, | PL, | PT, |
| | | RO, | SE, | SI, | SK, | TR, | BF, | ВJ, | CF, | CG, | CI, | CM, | GΑ, | GN, | GQ, | GW, | ML, |
| | | MR, | ΝE, | SN, | TD, | ΤG | | | | | | | | | | | |
| CA | CA 2557278 | | A1 | 20050909 | | | CA 2005-2557278 | | | | | 20050224 | | | | | |
| EP | EP 1718653 | | | A1 | | 20061108 | | | EP 2005-724220 | | | | | 20050224 | | | |
| | R: | AT, | BE, | CH, | DE, | DK, | ES, | FR, | GB, | GR, | IT, | LI, | LU, | NL, | SE, | MC, | PT, |

| דם כד ודי | т 77 г.т | DO ME | CY, AL, TR, E | C C7 EE | שט זם זונ |
|------------------------|----------|------------|---------------|-------------|-------------|
| | • | , NO, MIN, | CI, AL, IN, E | og, Ca, EE, | по, гы, эк, |
| BA, HR, IS, | YU | | | | |
| CN 1950375 | A | 20070418 | CN 2005-80 | 013058 | 20050224 |
| BR 2005007987 | A | 20070731 | BR 2005-79 | 187 | 20050224 |
| JP 2007523950 | T | 20070823 | JP 2007-50 | 0828 | 20050224 |
| MX 2006PA09544 | A | 20061115 | MX 2006-PA | 9544 | 20060822 |
| IN 2006DN04910 | A | 20070810 | IN 2006-DN | 14910 | 20060825 |
| US 20070281959 | A1 | 20071206 | US 2007-58 | 19920 | 20070420 |
| PRIORITY APPLN. INFO.: | | | US 2004-54 | 18154P E | 20040225 |
| | | | WO 2005-US | 6627 V | v 20050224 |
| OTHER SOURCE(S). | MARPAT | 143.28641 | \cap | | |

OTHER SOURCE(S): MARPAT 143:286410

AB Title compds. I [R1 = (un)substituted Ph, pyridin-2-yl, furan-2-yl, thiophen-2-yl, pyrrol-2-yl; and their pharmaceutically acceptable derivs.; with provisos] were prepared as selective glucocorticoid receptor (GR) modulators and/or selective glucocorticoid binding agents. Thus addition of 2-fluorobenzylmagnesium bromide (formed in-situ from 2-fluorobenzyl bromide and Mg) to 9-hydroxy-10-methoxy-2,2,4-trimethyl-1,2-dihydro-5H-chromeno[3,4-f]quinolin-5-one in Et2O, and treatment with p-TSA in DCM gave chromenoquinoline II. II bound to GR with Ki < 1 nM. I are useful for treating diseases mediated by or in which GR activity is implicated such as inflammatory, autoimmune and hyperproliferative diseases (no data).

IT 864054-14-8P, (Z)-5-(2'-Fluoro-3'-methylbenzylidene)-1,2-dihydro-9-hydroxy-10-methoxy-2,2,4-trimethyl-5H-chromeno[3,4-f]quinoline RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(drug candidate; preparation of 5H-chromeno[3,4-f]quinolines as glucocorticoid receptor modulators)

RN 864054-14-8 CAPLUS

CN 1H-[1]Benzopyrano[3,4-f]quinolin-9-ol, 5-[(2-fluoro-3-methylphenyl)methylene]-2,5-dihydro-10-methoxy-2,2,4-trimethyl-, (5Z)-(CA INDEX NAME)

Double bond geometry as shown.

REFERENCE COUNT:

THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 1 OF 1 USPATFULL on STN

ACCESSION NUMBER: 2007:322627 USPATFULL <<LOGINID::20080819>>

TITLE: Glucocorticoid receptor modulator compounds and methods

INVENTOR(S): Zhi, Lin, San Diego CA 92130, CA, UNITED STATES PATENT ASSIGNEE(S): LIGAND PHARMACEUTICALS INCORPORATED, SAN DIEGO CALIFORNIA, CA, UNITED STATES, 92121-1117 (U.S.

corporation)

20070420 PCT 371 date

NUMBER DATE

PRIORITY INFORMATION: US 2004-548154P 20040225 (60)

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION

LEGAL REPRESENTATIVE: FISH & RICHARDSON, PC, P.O. BOX 1022, MINNEAPOLIS, MN,

55440-1022, US

NUMBER OF CLAIMS: 137
EXEMPLARY CLAIM: 1
LINE COUNT: 10210

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 1 OF 2 TOXCENTER COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2008:17529 TOXCENTER <<LOGINID::20080819>>

COPYRIGHT: Copyright 2008 ACS DOCUMENT NUMBER: CA14812253667R

TITLE: Antiinflammatory glucocorticoid receptor ligand with reduced side effects exhibits an altered protein-protein

interaction profile

AUTHOR(S): Miner, Jeffrey N.; Ardecky, Bob; Benbatoul, Khalid;

Groffoths, Kimberly; Larson, Christopher J.; Mais, Dale E.; Marschke, Keith; Rosen, Jon; Vajda, Eric; et al.

CORPORATE SOURCE: Discovery Research, Ligand Pharmaceuticals, San Diego, CA,

92121, USA.

SOURCE: Proceedings of the National Academy of Sciences of the

United States of America, (2007) Vol. 104, No. 49, pp.

19244-19249.

CODEN: PNASA6. ISSN: 0027-8424.

COUNTRY: UNITED STATES

DOCUMENT TYPE: Journal FILE SEGMENT: CAPLUS

OTHER SOURCE: CAPLUS 2008:24690

LANGUAGE: English

ENTRY DATE: Entered STN: 15 Jan 2008

Last Updated on STN: 18 Mar 2008

AB Glucocorticoids are commonly used anti-inflammatory agents whose use is limited by side effects. The authors have developed a series of glucocorticoid receptor (GR) ligands that retain the strong anti-inflammatory activity of conventional glucocorticoids with reduced side effects. The authors present a compound, LGD5552, that binds the receptor efficiently and strongly represses inflammatory gene expression. LGD5552 bound to GR activates gene expression somewhat differently than glucocorticoids. It activates some genes with an efficacy similar to that of the glucocorticoids. However, other glucocorticoid-activated genes are not regulated by LGD5552. These differences may be because of the more efficient binding of corepressor in the presence of LGD5552, compared with glucocorticoid agonists. This class of nonsteroidal, GR-dependent anti-inflammatory drugs may offer a safer alternative to steroidal glucocorticoids in the treatment of inflammatory disease.

L6 ANSWER 2 OF 2 TOXCENTER COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:264478 TOXCENTER <<LOGINID::20080819>>

COPYRIGHT: Copyright 2008 ACS DOCUMENT NUMBER: CA14316286410B

TITLE: Preparation of 5H-chromeno[3,4-f]quinolines as

glucocorticoid receptor modulators

AUTHOR(S): Zhi, Lin; Ardecky, Robert J.; Phillips, Dean; Tyhonas,

John S.; Karanewsky, Donald S.; Higuchi, Robert I.; Hudson, Andrew Richard; Roach, Steven L.; Vassar, Angie

C.; et al.

CORPORATE SOURCE: ASSIGNEE: Ligand Pharmaceuticals Incorporated

PATENT INFORMATION: WO 2005082909 A1 9 Sep 2005 SOURCE: (2005) PCT Int. Appl., 352 pp.

CODEN: PIXXD2.

COUNTRY: UNITED STATES

DOCUMENT TYPE: Patent FILE SEGMENT: CAPLUS

OTHER SOURCE: CAPLUS 2005:979655

LANGUAGE: English

ENTRY DATE: Entered STN: 4 Oct 2005

Last Updated on STN: 30 Jan 2007

AB Title compds. I [R1 = (un)substituted Ph, pyridin-2-yl, furan-2-yl, thiophen-2-yl, pyrrol-2-yl; and their pharmaceutically acceptable derivs.; with provisos] were prepared as selective glucocorticoid receptor (GR) modulators and/or selective glucocorticoid binding agents. Thus addition of 2-fluorobenzylmagnesium bromide (formed in-situ from 2-fluorobenzyl bromide and Mg) to 9-hydroxy-10-methoxy-2,2,4-trimethyl-1,2-dihydro-5H-chromeno[3,4-f]quinolin-5-one in Et2O, and treatment with p-TSA in DCM gave chromenoquinoline II. II bound to GR with Ki < 1 nM. I are useful for treating diseases mediated by or in which GR activity is implicated such as inflammatory, autoimmune and hyperproliferative diseases (no data).